

3.13 Vegetation and Invasive Species

This section describes the vegetation communities that occur in the project study area and addresses the potential impacts on vegetation that may result from implementing Alternative 1 and Alternative 4. The vegetation impacts correlate to direct loss of wildlife habitat. Additional detailed discussion of vegetation as it relates to wildlife habitat is provided in Section 3.15, *Wildlife, Threatened and Endangered Species, and Special-Status Plants*, of this chapter.

This section also lists noxious weeds of concern in Utah and Salt Lake counties and noxious weeds observed in the study area. Potential noxious weed impacts resulting from the implementation of Alternative 4 and mitigation measures are also identified.

3.13.1 Regulatory Setting

On February 3, 1999, President Bill Clinton signed Executive Order 13112, which requires federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.”

The Utah Noxious Weed Act (Title 4, Chapter 17-1, of the Utah Code and Constitution) requires each county to formulate and implement a countywide noxious weed control program that is designed to prevent and control noxious weeds within the county.

3.13.2 Affected Environment

3.13.2.1 Physical Setting

The project study area is located primarily along the east side of Utah Lake, in the Utah Valley, at the western base of the Wasatch Mountains. The Wasatch Mountains mark the eastern limit of the Great Basin Province, which is characterized by a cold high-desert climate. The regional study area includes the Utah Valley and the full length of the Jordan River in the Great Salt Lake Basin. The climate has been characterized as cool winter steppe or semi-arid (Jackson and Stevens 1981). Precipitation varies around the lake and can be attributed to the local differences in temperature and local topography, with averages ranging from 9 inches at Vineyard to 18 inches at Santaquin (Jackson and Stevens 1981).

3.13.2.2 Methodology

Site visits were conducted in August 2004 to determine the specific types of vegetative assemblages occurring within the study area and to ascertain information on the distribution and general controlling factors of these communities. The specific types of vegetative assemblages then were studied to determine the general species composition and to verify interpretation of aerial photographs of the areas and geographic information system (GIS) maps of land cover types, based on U.S. Geological Survey (USGS) National Land Cover and National Wetland Inventory datasets.

The existing vegetation within the project study area exhibits extensive disturbance because of previous construction of railroad corridors, I-15, and many smaller roads, as well as other previous development and disturbance (e.g., urban and suburban development, farming, livestock grazing, dikes, and fences). General vegetation assemblages of potential occurrence within the study area include riparian, emergent marsh, wet meadow, pasture, cropland, salt desert scrub, and developed (including urban landscaping). The following paragraphs provide general descriptions of the vegetative types occurring within the project study area.

3.13.2.3 Riparian

Riparian habitat is uncommon, degraded, and fragmented within the project study area. This habitat is restricted to a few river courses and an area ("Camelot Forest") between the North Springville interchange and Provo Bay. The Jordan River and Camelot Forest support the majority of this habitat type in the project study area. Remnant native vegetation includes Fremont cottonwood (*Populus fremontii*), sandbar willow (*Salix exigua*), and narrowleaf cottonwood (*Populus angustifolia*). In many areas, however, these species have been replaced by Russian olive (*Elaeagnus angustifolius*), Siberian elm (*Ulmus pumila*), and saltcedar (*Tamarix ramosissima*).

Impacts to riparian vegetation were calculated from scaled aerial photographs where rivers, streams or canals cross within the study area outlined in Volume II. Riparian acreages are exclusive of all types of delineated wetlands and Waters of the U.S. The project will impact a maximum of 4.4 acres of riparian vegetation, and a minimum of 3.2 acres. Impacts by design option are detailed below.

3.13.2.4 Emergent Marsh

Emergent marshes are wetlands dominated by herbaceous vegetation adapted to seasonally or semipermanently flooded conditions. Water depth varies but is not deep enough to restrict the growth of emergent plants. Vegetation commonly observed in these marshes includes hard stem bulrush (*Scirpus acutus*), alkali bulrush (*Scirpus maritimus*), three square bulrush (*Scirpus americanus*, *Scirpus pungens*), cattail (*Typha latifolia*), creeping spikerush (*Eleocharis palustris*), reed canary grass (*Phalaris arundinacea*), common reed (*Phragmites australis*), blister buttercup (*Ranunculus scleratus*), water buttercup (*Ranunculus aquatilis*), and Nebraska sedge (*Carex nebrascensis*).

Within the project study area, emergent marshes are found adjacent to the open water habitats along the eastern boundary of Provo Bay, near Mill Pond in American Fork, and in a few ponds along I-15. Refer to Section 3.14, *Wetlands/Waters of the United States*, for more detailed discussion of wetland vegetation. Agriculture and urbanization along the western edge of the Wasatch Mountains have greatly influenced the number and types of emergent marsh habitats in the area. Agricultural runoff has increased the frequency and duration of inundation and soil saturation in many locations. Emergent marshes also have been created by impoundment of both groundwater and surface water by roads and dikes.

3.13.2.5 Wet Meadow

Wet meadow habitats are the most abundant type of wetland in the project study area. They are typically found in areas with a high water table or groundwater discharge, where poorly drained soils cause seasonally saturated and sometimes flooded conditions. Surface water flows can contribute to or prolong seasonally wet conditions. Inundation occurs less frequently and for shorter duration in wet meadows than in emergent marshes. Refer to Section 3.14, *Wetlands/Waters of the United States*, for additional discussion of wetland vegetation. Agriculture and urbanization have modified the hydrologic regime of wet meadows in the project study area much as they have affected emergent marshes. Plant species commonly observed in wet meadows within the project study area include Baltic rush (*Juncus balticus*), clustered field sedge (*Carex praegracilis*), Nebraska sedge, rabbits-foot grass (*Polypogon monspeliensis*), foxtail barley (*Hordeum jubatum*), little barley (*Hordeum pusillum*), curly dock (*Rumex crispus*), and saltgrass (*Distichlis spicata*).

3.13.2.6 Pasture

Much of the farmland in the project study area consists of pasture. It is the most abundant habitat type found in the project study area. Before conversion for agricultural purposes, pastures were typically wet meadows or salt desert scrub habitats. Pastures are generally located on flat or gently sloping lands and are vegetated with a mix of perennial nonnative grasses. Typical forage species planted in pastures include meadow brome (*Bromus riparius*), smooth brome (*B. inermis*), tall fescue (*Festuca arundinacea*), meadow fescue (*F. pratensis*), perennial ryegrass (*Lolium perenne*), creeping meadow foxtail (*Alopecurus arundinaceus*), intermediate wheatgrass (*Elymus hispidus*), tall wheatgrass (*E. elongatus*), and timothy (*Phleum pratense*). The height of the vegetation varies according to season, level of irrigation, drainage, fertilization, landscape applications, and livestock stocking levels; it ranges from as little as 3 inches to 24 inches or more on fertile soils prior to grazing applications.

3.13.2.7 Cropland

Large tracts of cropland are located within the project study area. The major crops actively farmed on these lands include corn, wheat, sod, and alfalfa. Much of the cropland is regularly disturbed as a result of active crop rotation.

3.13.2.8 Salt Desert Scrub

Desert scrub occurs primarily in the saline upland areas of the study area. It is characterized by shadscale (*Atriplex confertifolia*), Gardner saltbush (*Atriplex gardneri*), and greasewood (*Sarcobatus vermiculatus*). Within the project study area, this habitat has been heavily grazed by free-range livestock. Native grasses have been largely replaced by exotic grasses and forbs, including abundant cheatgrass (*Bromus tectorum*). Japanese brome (*Bromus japonicus*), wheatgrass (*Elymus* spp.), bulbous bluegrass (*Poa bulbosa*), whitetop (*Caldaria draba*), storksbill (*Erodium cicutarium*), and gumweed (*Grindelia squarrosa*) are also abundant throughout the project study area.

3.13.2.9 Developed / Urban Landscaping

Developed/urban landscaping comprises areas that are used for residential, commercial, or industrial purposes. Pavement and buildings, with occasional urban landscaping, such as lawns, shrubs, and trees, predominantly cover these portions of the project study area.

3.13.2.10 Invasive Species

The Utah Noxious Weed Act requires each county to formulate and implement a countywide noxious weed control program designed to prevent and control noxious weeds. In administering the Utah Noxious Weed Act, the state weed specialist coordinates and monitors weed control programs throughout the state. County commissioners may declare a particular weed a county noxious weed. A list of noxious weeds of concern in Utah is provided in Table 3.13-1.

To identify noxious weeds that may be of concern in the project vicinity, the following sources were used:

- **State Noxious Weeds:** Utah Noxious Weed List (Utah Department of Agriculture and Food 2007), which lists officially designated noxious weeds for the State of Utah, per the authority vested in the Commissioner of Agriculture under the Utah Noxious Weed Act.
- **County Declared Invasive Weeds:** County Noxious Weeds 2003 (Utah Department of Agriculture and Food 2003), available at http://ag.utah.gov/plantind/nox_county.pdf. No county-declared invasive weeds are identified on the County Noxious Weed List for Utah and Salt Lake counties.

Aquatic nuisance species pose a substantial threat to Utah water resources. Because their habitat occurs in the study area, the two species of primary concern are purple loosestrife (*Lythrum salicaria*), which often grows on the banks of perennial streams and in wet meadow habitat, and Eurasian watermilfoil (*Myriophyllum spicatum*), which requires perennial open water. In addition, the zebra mussel (*Dreissena polymorpha*), an aquatic bivalve, also has the potential to occur in the study area.

Table 3.13-1: Noxious Weeds of Potential Concern in Utah

Common Name	Scientific Name
Quackgrass	<i>Agropyron repens</i>
Hoary cress	<i>Cardaria draba</i>
Musk thistle	<i>Carduus nutans</i>
Diffuse knapweed	<i>Centaurea diffusa</i>
Spotted knapweed	<i>Centaurea maculosa</i>
Russian knapweed	<i>Centaurea repens</i>
Yellow starthistle	<i>Centaurea solstitialis</i>

Table 3.13-1: Noxious Weeds of Potential Concern in Utah - continued

Common Name	Scientific Name
Squarrose knapweed	<i>Centaurea squarrosa</i>
Canada thistle	<i>Cirsium arvense</i>
Field bindweed (wild morning glory)	<i>Convolvulus arvensis</i>
Bermuda grass	<i>Cynodon dactylon</i>
Leafy spurge	<i>Euphorbia esula</i>
Dyers woad	<i>Isatis tinctoria</i>
Perennial pepperweed	<i>Lepidium latifolium</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Scotch thistle	<i>Onopordum acanthium</i>
Johnsongrass	<i>Sorghum halepense</i>
Perennial sorghum	<i>Sorghum halepense</i> and <i>Sorghum alnum</i>
Medusahead	<i>Taeniatherum caput-medusae</i>

Source: Utah Department of Agriculture and Food 2007.

The noxious weed species observed in the study area during the wetland delineation included quackgrass, hoary cress, musk thistle, yellow starthistle, Canada thistle, field bindweed, perennial pepperweed, purple loosestrife, and scotch thistle.

3.13.3 Alternative 1: No Build

No construction-related impacts on vegetation from I-15 would occur under Alternative 1.

Under Alternative 1, regular road maintenance would occur, and invasive weed species occurring within the study area likely would be managed as part of the UDOT weed control program. Therefore, Alternative 1 is not expected to result in the spread of noxious weeds.

3.13.4 Alternative 4: I-15 Widening and Reconstruction

Alternative 4 would involve vegetation clearing, grading, and other soil-disturbing activities. All existing vegetation would be permanently removed from the project limits of disturbance and the ground surface directly converted for highway transportation purposes. Vegetation assemblages occurring in the project limits of disturbance, including riparian, emergent marsh, wet meadow, pasture, cropland, salt desert scrub, and developed/urban landscaping, would experience impacts from the proposed construction activities. The existing vegetation in the project study area is highly disturbed from various past and ongoing human activities (e.g., agriculture, fences, roads, and urban development). Therefore, the additional effects that Alternative 4 would have on vegetation are expected to be minimal. Implementing this alternative would not be likely to result in any detectable change in the population viability of any individual plant species or vegetation community in the area.

Cumulative impacts on biological resources are generally additive and proportional to the amount of ground disturbance within specific habitat types. Detailed discussions of direct impacts on wildlife habitat and wetlands are included in subsequent Sections 3.14, *Wetlands/Waters of the United States*, and 3.15, *Wildlife, Threatened and*

Endangered Species, and Special-Status Plants, respectively. Indirect and cumulative impacts are addressed in Section 3.19, *Indirect and Cumulative Impacts*.

The unpaved portions of the reconstructed I-15 right-of-way would be re-vegetated in conformance with a landscaping plan that would be developed in accordance with UDOT's specifications. UDOT is responsible for managing Utah state designated invasive species in their right-of-way.

Construction activities associated with Alternative 4 could introduce or spread noxious weeds into areas not currently infested. Plants or seeds of noxious weeds may be dispersed via construction equipment and may be able to colonize disturbed soil if appropriate mitigation measures are not implemented. Impacts from the introduction of invasive species include displacement or elimination of native plant species and therefore degradation of habitat for wildlife species, which depend on native plants for food. Displacement of native plants could in turn indirectly affect community structure and ecosystem processes. The potential for introducing and spreading invasive species is anticipated to be the same for all of the Alternative 4 design options. However, implementation of mitigation measures identified in Section 3.13.5 would ensure that construction activities would not introduce or spread invasive species in the study area.

3.13.4.1 Comparison of Design Options

The area of land acquired for Alternative 4, as summarized in Table 3.4-1 "Summary of Alternative 4 Relocation Impacts" was used to compare the relative vegetation impacts of the four design options in the Provo/Orem area and for the three American Fork Main Street options. This additional land and its associated vegetation would be disturbed during construction and incorporated into the Alternative 4 right-of-way.

The project will impact a maximum of 4.4 acres of riparian vegetation, and a minimum of 3.2 acres. The common areas will impact no more than 0.8 acres of riparian vegetation. In the Provo-Orem area, Option A will impact 3.4 acres, Option B will impact 3.2 acres, Option C will impact 2.4 acres and Option D will impact 2.4 acres. The differences are explained by the presence or absence of frontage roads or an Orem 800 South Interchange. In American Fork, all three design options impact 0.2 acres of riparian vegetation. The Preferred Alternative includes Option D in Provo/Orem and Option C in American Fork. The Preferred Alternative will impact 3.3 acres of riparian vegetation.

3.13.5 Mitigation

The re-vegetation of the I-15 right-of-way will mitigate for the loss of urban landscaping vegetation from I-15 widening and reconstruction in conformance with a landscaping plan. UDOT will specify that certified weed-free seed mixes used for landscaping and/or erosion control. Wetland re-vegetation will be included under the Clean Water Act (CWA) Section 404 permitting process.

Removal of riparian vegetation will be minimized, where possible. Vegetation along river corridors that are impacted by equipment or other construction activities will be replaced with native riparian vegetation.

During design/construction, UDOT will develop an Invasive Weed Control specification which identifies best management practices (BMPs) that will be used to control the introduction and spread of noxious weeds on disturbed sites along the right-of-way.

In compliance with Executive Order 13112, the Utah Noxious Weed Act, and subsequent guidance from the Federal Highway Administration (FHWA), the landscaping and erosion control included as part of the project will not use species listed as noxious weeds. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or adjacent to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.

A number of measures to avoid or minimize construction impacts on vegetation will be implemented during and after construction. Certain measures relate only to construction activities near environmentally sensitive areas such as

wetland/riparian areas and floodplains, while others relate to upland site stabilization and re-vegetation, or final project design considerations. The measures related to construction include the following:

- Construction specifications will require contractors to prevent any unnecessary destruction, scarring, or defacing of vegetation in the work vicinity. Trees, shrubs, and other vegetation will be preserved and protected from construction activities and equipment, except where clearing and grubbing is required for fill, excavation, or other construction activities (e.g., retaining wall).
- Clearing and grubbing activities will be limited to that needed for project construction. All critical environmental areas including wetlands, riparian areas, stream corridors, and floodplains will be clearly delineated and marked with hazard fencing before the start of construction and avoided to the maximum practicable extent. Critical environmental areas will not be used for equipment, material storage, construction staging grounds and maintenance activities, or field offices.
- Excavated or graded materials will not be stockpiled or deposited near or on any waterways or wetlands outside the approved footprint.
- As soon as an area is no longer needed for construction, stockpiling, or access, final site stabilization and landscape restoration measures will be initiated. Any lands disturbed and not permanently occupied by project facilities will be graded to provide proper drainage, covered with topsoil stripped from construction areas or stockpiles, scarified as needed, and re-vegetated with a low-lying, grass-forb seed mix that will be less likely to attract wildlife into the highway right-of-way.
- Mulching or other comparable methods will be used as a means of controlling dust and erosion, and to aid re-vegetation efforts.
- When no longer required by the contractor, any temporary access roads will be graded to ensure proper drainage and erosion prevention, and made impassable to traffic. Temporary access road surfaces will be scarified to establish conditions suitable for reseeding or replanting and will be blocked from traffic to allow establishment of vegetation.
- To ensure successful plant establishment, permanent plantings will occur during the early spring and/or fall when precipitation is sufficient for plant survival. All plantings will be monitored by UDOT and the landscape contractor.
- During monitoring, any noxious weeds will be identified and controlled by UDOT and the contractor. If noxious weeds are identified during monitoring, preventative measures will be used to ensure that the landscape restoration program succeeds.
- A weed control management plan will be developed by the contractor and approved by UDOT prior to initiating construction. Measures to avoid the establishment and spread of noxious weeds will include at a minimum: (1) inspection and cleaning of all construction equipment, (2) use of weed-free seed mulches, topsoil and seed mixtures during landscaping and (3) use of eradication strategies in the event a noxious weed invasion occurs.

3.14 Wetlands / Waters of the United States

This section describes the wetlands and other aquatic resources that occur within the wetland delineation study area. Sources of information used for this assessment include National Wetland Inventory (NWI) maps, aerial photographs, field surveys, wetland delineations, and technical literature. The section presents the following information:

- methods used to characterize and quantify wetlands and other water features in the wetland delineation study area;
- a description of the wetlands and other water features occurring in the wetland delineation study area;
- a general discussion of wetland functions;
- a discussion of direct and indirect impacts on wetlands located in the wetland delineation study area; and
- a discussion of measures to avoid, minimize and mitigate wetland impacts.

3.14.1 Regulatory Setting

3.14.1.1 Federal Regulations

Clean Water Act Section 404

The U.S. Army Corps of Engineers (USACE) developed a definition of waters of the United States under the 1972 Clean Water Act (33 U.S.C. 1251). *Waters of the U.S.* are defined as waters currently or previously used for interstate or foreign commerce; all interstate waters; any waters, the destruction of which could affect interstate or foreign commerce; all impoundments; tributaries of the previously mentioned waters; the territorial seas; and wetlands adjacent to waters.

Wetlands are defined as a subset of waters of the U.S. and, for the purposes of regulatory guidance, are considered special aquatic sites.

USACE has jurisdiction over waters of the U.S. USACE further defines wetland in the Section 404 of the Clean Water Act as:

... those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

USACE presently has jurisdiction over any waters that are adjacent to navigable waterways. For this EIS, it is assumed that all waters within the ecosystem impact analysis area are jurisdictional and subject to the authority of USACE.

Under Section 404 of the Clean Water Act, no discharge of dredged or fill material is permitted in waters of the U.S. if there is a less environmentally damaging practicable alternative to that part of the activity that would result in a discharge of fill material to waters of the U.S. An alternative is practicable if it is available and capable of being implemented after taking into consideration cost, existing technology, and logistics in light of the overall project purposes.

For actions that are subject to NEPA, where USACE is the permitting agency and, in this case, a cooperating agency, the NEPA alternatives analysis must provide the information necessary for a Clean Water Act Section 404(b)(1) alternatives analysis and selection of the least environmentally damaging practicable alternative.

Clean Water Act Section 401

CWA Section 401 gives EPA review authority over issuance of Section 404 permits. EPA reviews whether an activity might result in a discharge that violates federal or state water quality standards and provides a water quality certification if these standards would be met. Section 401 allows states to assume authority for water quality review; in Utah, EPA has delegated this authority to the Utah Department of Environmental Quality (UDEQ), Division of Water Quality.

Executive Order 11990: Protection of Wetlands

Executive Order 11990 (May 24, 1977) directs all federal agencies to refrain from assisting in or giving financial support to projects that encroach on public or privately owned wetlands. It further requires federal agencies to support a policy to minimize the destruction, loss, or degradation of wetlands. A project that encroaches on wetlands may not be undertaken unless the agency has determined that 1) there are no practicable alternatives to such construction; 2) the proposed action includes all practicable measures to minimize harm to wetlands that would be affected by the project; and 3) the impact would be minor.

3.14.1.2 State Regulations

Utah Division of Water Rights Stream Alteration Rules (Title R655-13)

Any project that proposes to alter a natural stream within Utah must first obtain a stream alteration permit from the Utah State Engineer's office. The purpose of regulating activities that affect the bed or banks of natural streams is to ensure that a project does not impair vested water rights and does not unreasonably or unnecessarily affect any recreational use or the natural stream environment, endanger aquatic wildlife, or diminish the natural channel's ability to conduct high flows. Under these rules, a natural stream is defined as any waterway, along with its fluvial system, that receives sufficient water to sustain an ecosystem that distinguishes it from the surrounding upland environment.

3.14.2 Affected Environment

3.14.2.1 Methodology for Assessment of Existing Conditions

Wetland Delineation

A wetland delineation of the I-15 Corridor was conducted between August 2005 and August 2007 (Wetland Resources 2006 and 2007). The wetland delineation study area includes the median and both sides of I-15, varying from 125 feet from the edge of pavement to more than 600 feet from edge of pavement in some areas. At existing and proposed interchanges, the wetland delineation study area was extended to include enough additional area to evaluate realignment of the interchanges.

The wetland delineation was completed in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and for Addendum 2 the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers 2006). All potential wetland areas were checked for wetland indicators. If wetland indicators were present, a sample point was completed for that area. For each sample point, plant species within a 6-foot radius of the sample point were recorded and the percent of relative cover for each species was determined by estimating areal cover. The wetland indicator status of each species was determined from the *National List of Plant Species That Occur in Wetlands: Intermountain - Region 8* (U.S. Fish and Wildlife Service 1988). Sample points were also examined for soil characteristics and indicators of wetland hydrology.

The recent Rapanos guidance was not utilized for this EIS because the original delineation was completed prior to issuance of this guidance.

On November 2, 2007, the USACE issued a letter on the project's jurisdictional delineation, with minor adjustments. The delineation of wetlands analysis in this section reflects the USACE concurrence letter including the adjustments. That determination is valid for 5 years from the date of the letter.

3.14.2.2 Existing Conditions

Physical Setting

The wetland delineation study area is located primarily along the east side of Utah Lake, in the Utah Valley, at the western base of the Wasatch Mountains. The Wasatch Mountains mark the eastern limit of the Great Basin Province, which is characterized by a cold high-desert climate. The climate has also been described as cool winter steppe or semi-arid (Jackson and Stevens 1981). Precipitation varies around the lake and can be attributed to the local differences in temperature and topography, with averages ranging from 9 inches per year at Vineyard to 18 inches per year at Santaquin (Jackson and Stevens 1981).

Utah Lake is a large, freshwater lake covering more than 94,000 acres (Jackson and Stevens 1981; Fuhrman et al. 1981). Despite its size, the lake is quite shallow, ranging from 6–10 feet deep. The headwaters of the source streams are in the Wasatch and Uinta Mountains to the east. The lake hydrology is supported by four major streams, several minor perennial streams, and many intermittent streams. All four of the major streams that drain into the lake (American Fork River, Hobbie Creek, Provo River, and Spanish Fork River) cross the study area. The area surrounding the lake is underlain by low-pressure artesian aquifers; numerous springs are also present in and near the lake (Fuhrman et al. 1981). The Jordan River is Utah Lake's sole surface outlet.

Existing Wetland Resources in the Wetland Delineation Study Area

The wetland delineation study area, described above in section 3.14.2.1, encompasses approximately 247 acres of wetlands (Table 3.14-1). This acreage includes wetlands that were delineated but are not directly impacted by the project. Volume II of this DEIS shows the wetlands that were delineated for this project.

Table 3.14-1: Summary of Wetland Acreage in the Interstate 15 Wetland Delineation Study Area

Waters of the United States	Wet Meadow	Marsh	Shrub	Forested	Total
26	78	132	2	9	247

Source: Wetland Delineation Report for I-15 Highway Corridor South Santaquin to 12300 South.

Wetland Cover Types

Wetlands in the wetland delineation study area consist of a series of biological communities, or cover types, that are characterized by the structure and composition of the vegetation and by the water regime. Brotherson (1981) described the main aquatic and semi-aquatic communities associated with Utah Lake. This section provides information on the wetland cover types in the wetland delineation study area, based on Brotherson's descriptions and on observations made during the field reconnaissance. The general locations of wetland cover types in the South Utah County, Central Utah County, North Utah County, and South Salt Lake County Sections are shown in Figures 3.14-1 to 3.14-4, respectively.

Wet Meadow

Wet meadow is a wetland plant community that is characterized by grasses and other low-growing, perennial monocots. Although the soil may be saturated for long durations, the vegetation is generally not emergent. Three types of wet meadow—spikerush-sedge meadow, grass-rush-sedge meadow, and annual herbaceous wetlands—occur in the wetland delineation study area.

The first type of wet meadow occurring in the wetland delineation study area is spikerush-sedge meadow. The dominant species are creeping spikerush (*Eleocharis palustris*), Nebraska sedge (*Carex nebrascensis*), and arctic rush (*Juncus arcticus*). The drier portions of the community are dominated by salt grass (*Distichlis spicata*). Under the U.S. Fish and Wildlife Service (USFWS) classification system (Cowardin et al. 1979), this community is classified as “Palustrine, Emergent, Seasonally Flooded.” The wetland hydrology of spikerush-sedge meadow is supported both by lake water and groundwater. Early in the growing season, the level of the water table may be higher than the ground surface, causing inundation. However, the length of inundation is shorter in meadow than in marsh habitats. The meadow areas are inundated in winter and spring but are drained by late summer, although the soils may remain saturated at the surface for extended periods.

The second type of wet meadow occurring in the wetland delineation study area is grass-rush-sedge meadow. The dominant species include salt grass, arctic rush, creeping spikerush, Nebraska sedge, clustered field sedge (*Carex praegracilis*), and foxtail barley (*Hordeum jubatum*). Under the USFWS classification system, this community is classified as “Palustrine, Emergent, Saturated, or Temporarily Flooded.” Grass-rush-sedge meadow is supported primarily by groundwater. However, this community is also found in irrigated pastures. Inundation, when it occurs, is short lived. However, the soils remain saturated for long periods during the growing season. As the water table drops in summer, the meadows become drier, and upland species may begin to grow by late summer.

Also classified within wet meadow were annual herbaceous wetlands, miscellaneous small wetlands dominated by annual, ruderal (disturbance-tolerant), generally non-native species. Typical species in these annual herbaceous wetlands include willow-weed (*Polygonum lapathifolium*), oakleaf goosefoot (*Chenopodium glaucum*), common cocklebur (*Xanthium strumarium*), witchgrass (*Panicum capillare*), sea-purslane (*Sessuvium verrucosum*), annual rabbit's-foot grass (*Polypogon monspeliensis*), and curly dock (*Rumex crispus*). Species more typical of wet meadow habitats may also be present but not abundant. This wetland type includes recently excavated areas that support wetland hydrology and natural wetlands that have been substantially disturbed. This wetland type is scattered throughout the wetland delineation study area. Under the USFWS classification system, this community is classified as “Palustrine, Unconsolidated Shore, Seasonally Flooded.” The wetland hydrology of annual herbaceous wetlands in the wetland delineation study area is provided by surface water, primarily as runoff from precipitation or snowmelt.

Marsh

Marsh is a wetland plant community that is characterized by tall, emergent, perennial, herbaceous monocots. The characteristic plant species of marsh within the wetland delineation study area are broadleaved cattail (*Typha latifolia*) and hard stem bulrush (*Scirpus acutus*), although common reed (*Phragmites australis*), creeping spikerush, and reed canary grass (*Phalaris arundinacea*) are also common. Much of Provo Bay is bordered by bulrush-cattail marsh, and smaller stands are present throughout the wetland delineation study area. Under the USFWS classification system, this community is classified as “Palustrine, Emergent, Semipermanently Flooded.”

In marsh, water covers the ground surface for long periods during the growing season. The sources of wetland hydrology include surface water in marsh adjacent to Utah Lake and Mill Pond or along streams and canals, as well as groundwater away from the lake. Water depth can range from a few inches to several feet, but usually it is not deep enough to restrict the growth of emergent plant species.

Areas where marsh is supported primarily by groundwater are typically located in springs or depressions where the ground surface drops below the level of the water table. During spring, when the water table is high because of snowmelt and precipitation, these depressions are inundated. As the level of the water table drops in summer, the marsh areas may no longer be inundated, although the soils remain saturated.

Lowland Woody Communities

Two types of lowland woody wetland communities occur in the wetland delineation study area. The scrub-shrub community is characterized by an overstory of woody shrubs and small trees that are typically less than 9 feet tall. In the wetland delineation study area, the overstory of scrub-shrub wetlands is typically dominated by coyote willow (*Salix exigua*), but there are also areas that support tamarisk (*Tamarix ramosissima*). Understory plant species are similar to those found in wet meadow, including saltgrass, arctic rush, reed canary grass, and foxtail barley. This community occurs along streams or in association with wet meadow. Under the USFWS classification system, this community is classified as "Palustrine, Scrub-Shrub, Seasonally Flooded."

The forested wetland cover type is characterized by an overstory of large trees. In the wetland delineation study area, the dominant canopy species is Russian olive (*Elaeagnus angustifolia*). Stands of forested wetland occur primarily along streams and canals. Under the USFWS classification system, this community is classified as "Palustrine, Forested, Seasonally Flooded."

Lowland woody wetland communities are typically supported by shallow groundwater tables, usually in the vicinity of streams and other water bodies. In the wetland delineation study area, scrub-shrub wetlands associated with meadows also appear to be supported by springs. Inundation, when it occurs, is seasonal and usually short lived, usually in association with floods or seasonal stream flow peaks. Riparian forest and scrub, also associated with streams and water bodies, are similar to woody wetland communities, but the water table is much lower, wetland hydrology and soils absent, and the herbaceous understory is dominated by upland plant species.



Figure 3-14.1
General Location of Wetland Cover Types - South Utah County Section

LEGEND: Wetland Cover Types

- Wet Meadow
- Marsh
- Scrub-Shrub
- Forested
- I-15 Corridor

Note: This figure is a graphic representation of the general location of wetlands and is not to scale.

Data Sources: Wetland Delineation Report I-15 Highway Corridor-South Santaquin to 12300 South, 2006; USGS National Land Cover Dataset.



I-15 CORRIDOR EIS | UTAH COUNTY - SALT LAKE COUNTY

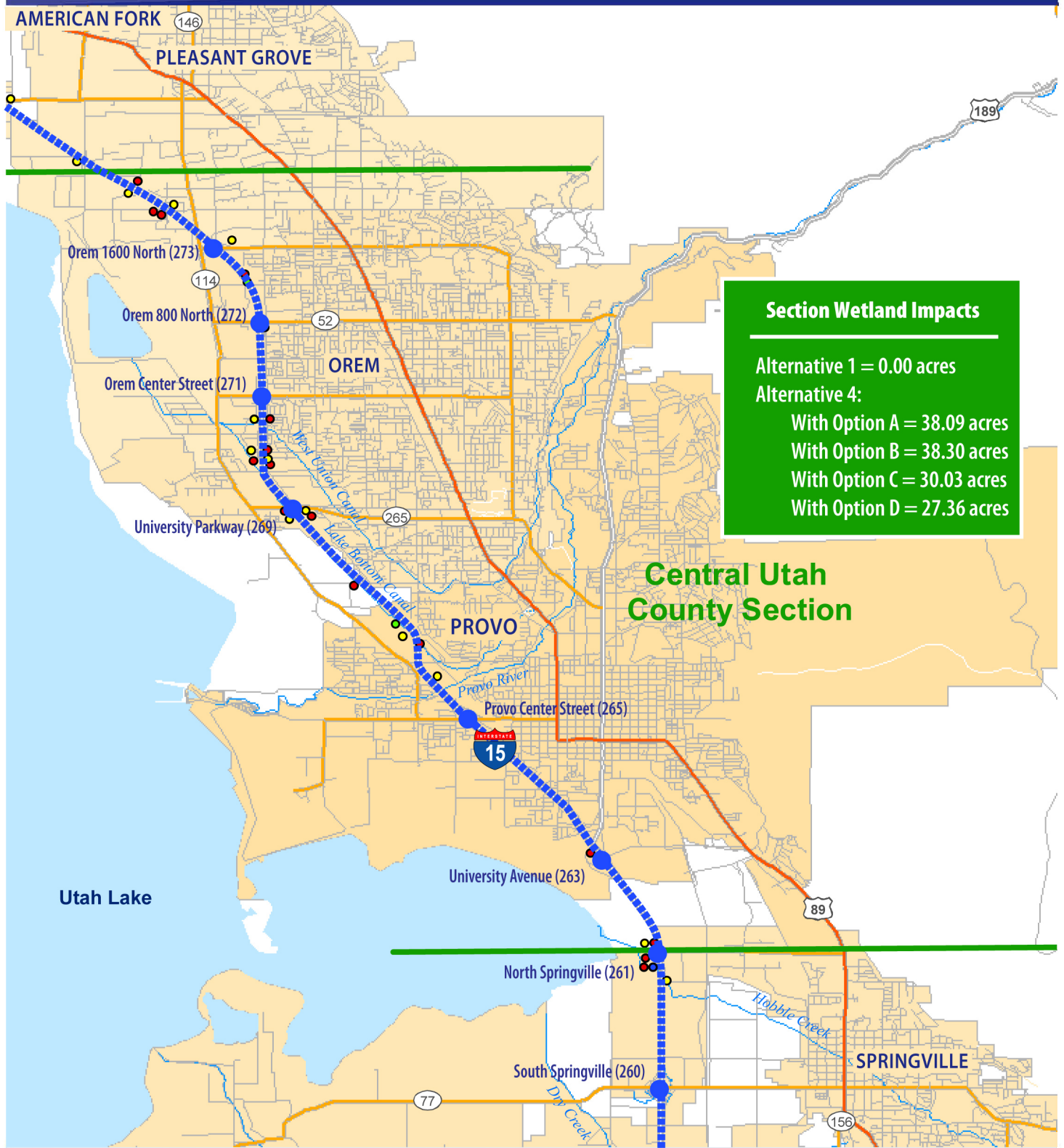


Figure 3-14.2
 General Location of Wetland Cover Types - Central Utah County Section

LEGEND: Wetland Cover Types

- Wet Meadow (yellow dot)
- Marsh (red dot)
- Scrub-Shrub (blue dot)
- Forested (green dot)
- I-15 Corridor (blue dashed line)

Note: This figure is a graphic representation of the general location of wetlands and is not to scale.

Data Sources: Wetland Delineation Report I-15 Highway Corridor-South Santaquin to 12300 South, 2006;
 USGS National Land Cover Dataset.





Figure 3-14.3
General Location of Wetland Cover Types - North Utah County Section

LEGEND: Wetland Cover Types

- Wet Meadow
- Marsh
- Scrub-Shrub
- Forested
- I-15 Corridor

Note: This figure is a graphic representation of the general location of wetlands and is not to scale.

Data Sources: Wetland Delineation Report I-15 Highway Corridor-South Santaquin to 12300 South, 2006; USGS National Land Cover Dataset.



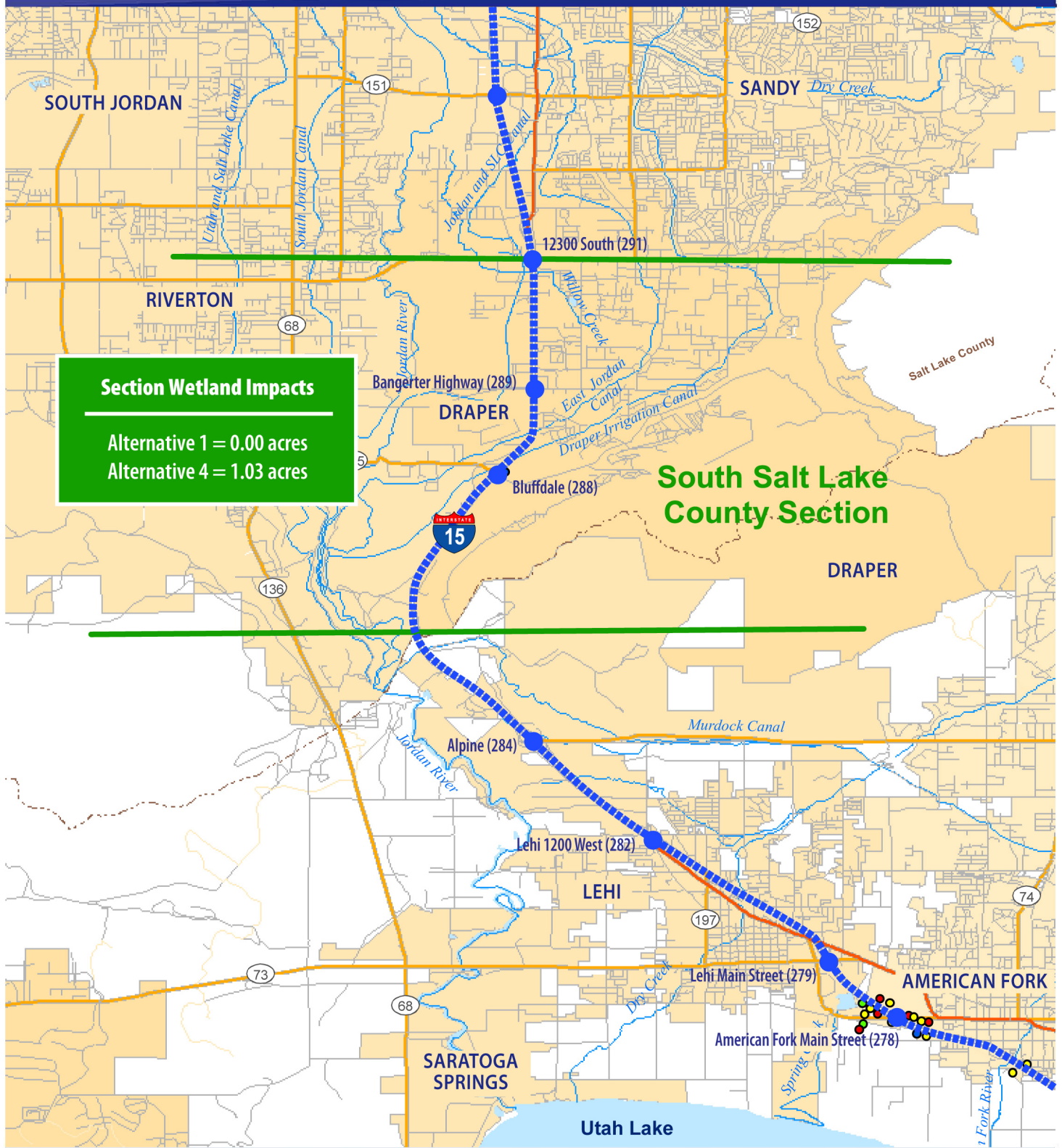


Figure 3-14.4
General Location of Wetland Cover Types - South Salt Lake County Section

LEGEND: Wetland Cover Types

- Wet Meadow
- Marsh
- Scrub-Shrub
- Forested
- I-15 Corridor

Note: This figure is a graphic representation of the general location of wetlands and is not to scale.

Data Sources: Wetland Delineation Report I-15 Highway Corridor-South Santaquin to 12300 South, 2006; USGS National Land Cover Dataset.



Other Waters of the United States

Other waters of the United States include certain lakes, rivers, streams and their tributaries. Other waters identified within the wetland delineation study area, include the Spanish Fork River, Hobble Creek, the Provo River, and the American Fork River.

Wetland Functions

Category I wetlands are of exceptionally high quality, or are important from a regulatory standpoint. They can represent a high quality example of a rare wetland type, provide irreplaceable ecological functions, exhibit exceptionally high flood attenuation capability, be rated exceptionally high for Plant Community Composition, or are assigned high ratings for most of the assessed functions.

Category II wetlands are those that provide habitat for sensitive plants or animals, function at very high levels for wildlife/fish/amphibian habitat, or are assigned high ratings for many of the assessed functions.

Category III wetlands generally have moderate to low Plant Community Composition rating, and have a higher level of disturbance than Category I and II wetlands. They can provide many functions and values, although they may not be assigned high ratings for as many parameters as are Category I and II wetlands.

Category IV wetlands are generally small, isolated, and are typically rated low for Plant Community Composition. These wetlands provide little in the way of wildlife habitat.

3.14.3 *Alternative 1: No Build*

Under Alternative 1, there would be no project-related impacts on wetland resources.

3.14.4 *Alternative 4: I-15 Widening and Reconstruction*

The following sections describe wetland impacts for Alternative 4, including each of the frontage road options, and interchange options. Two categories of wetland impacts would occur: direct and indirect. Direct impacts to wetlands from Alternative 4 range from 46.95 acres for the Preferred Alternative to 60.43 acres, depending upon options selected in the Provo/Orem area and at the American Fork Main Street interchange. These impacts are slightly higher than the acreages presented in the DEIS. Since the DEIS, further design has added two detention basins, one in the South Utah County Section and one in the Central Utah County Section. Both basins are located in the common areas and have no impact on the options in Provo/Orem or American Fork.

Direct impacts are impacts that would occur as a result of ground disturbance required to construct Alternative 4. The determination of these impacts on delineated wetlands was based on the environmental limit line developed from the conceptual engineering for the alternative (shown in Volume II of this EIS). This environmental limit line was established based on the conceptual engineering conducted for the alternatives and the options within Alternative 4 (this engineering is shown in the drawings contained in Volume II of this EIS.) It was generally established as a 50-foot offset from the shoulder of the Alternative 4 I-15 mainline, a 25-foot offset from the shoulder of ramps, and a 15-foot off-set from the shoulder of cross streets and from the frontage roads in Options A and B. These offsets take into account grade differences and resulting slopes. The environmental limit line also incorporates the area required to accommodate temporary construction activity.

The location of the delineated wetlands was incorporated into the conceptual engineering and the impacts on those wetlands calculated. This analysis assumed that all delineated wetlands within this environmental limit line would be filled, with subsequent loss of all wetland functions.

3.14.4.1 South Utah County

In the South Utah County section, the proposed project would result in the placement of fill materials in portions of 13 wetlands totaling 9.14 acres of direct impacts (Table 3.14-2). Additionally, there are direct impacts to 1.02 acres of non-wetland waters of the United States. An existing UDOT wetland mitigation site would also be impacted at the North Springville Interchange.

Table 3.14-2: Direct Impacts of Highway Construction on Wetlands (Acres) –

South Utah County Section

Type of Impact	Wet Meadow	Marsh	Shrub-Scrub	Forested	Total
Direct Effects	3.81	5.22	0.11	0.00	9.14

3.14.4.2 Central Utah County

In the Central Utah County section, portions of 19 wetlands would be filled, impacting between 27.36 acres and 38.30 acres of wetlands, depending on option. The difference in wetland impacts by option are illustrated in the following table. Two existing UDOT wetland mitigation sites would be impacted, one at the Orem University Parkway interchange (Options A and B only) and one at the Orem 1600 North interchange.

Table 3.14-3: Direct Impacts of Interchange Construction on Wetlands (Acres) –

Central Utah County Section Options

Option	Type of Impact	Wet Meadow	Marsh	Shrub-Scrub	Forested	Total
With Option A	Direct Effects	17.88	14.41	0.00	5.80	38.09
With Option B	Direct Effects	17.93	14.57	0.00	5.80	38.30
With Option C	Direct Effects	13.02	12.84	0.00	4.17	30.03
With Option D (Preferred)	Direct Effects	11.17	12.02	0.00	4.17	27.36

Options A and C would fill 0.06 acres of non-wetland waters of the United States. Options B and D would fill 0.04 acres of non-wetland waters of the United States.

3.14.4.3 North Utah County

In the North Utah County section, the proposed project would result in fill materials being placed in portions of 18 wetlands, impacting between 9.42 acres and 11.96 acres of wetlands, depending on option, as shown in Table 3.14-4. In addition, 0.16 acre of non-wetland waters of the United States would be filled.

Table 3.14-4: Direct Impacts of Interchange Construction on Wetlands (Acres) –

North Utah County Section Options

American Fork Main Street Option	Type of Impact	Wet Meadow	Marsh	Shrub-Scrub	Forested	Total
With Option A Diamond	Direct Effects	4.62	4.03	0.06	0.74	9.45
With Option B South SPUI	Direct Effects	7.38	2.94	0.16	1.48	11.96
With Option C North SPUI (Preferred)	Direct Effects	5.18	3.77	0.05	0.58	9.42

3.14.4.4 South Salt Lake County

Table 3.14-5 summarizes the direct impacts on wetlands for South Salt Lake County. A total of 1.03 acres of one wetland would be filled.

Table 3.14-5: Direct Impacts of Highway Construction on Wetlands (Acres) –

South Salt Lake County

Type of Impact	Wet Meadow	Marsh	Shrub-Scrub	Forested	Total
Direct Effects	0.00	0.00	1.03	0.00	1.03

3.14.4.5 Impact Summary for Alternative 4

A summary of the direct impacts to wetlands and other waters of the United States that could result from implementing Alternative 4 is provided in Table 3.14-6.

Table 3.14-6: Wetland Impact Summary for Alternative 4 (Acres)

Section / Option	Wet Meadow	Marsh	Shrub-Scrub	Forested	Total
Section Totals					
South Utah County	3.81	5.22	0.11	0.00	9.14
Central Utah County					
With Option A	17.88	14.41	0.00	5.80	38.09
With Option B	17.93	14.57	0.00	5.80	38.30
With Option C	13.02	12.84	0.00	4.17	30.03
With Option D (Preferred)	11.17	12.02	0.00	4.17	27.36
North Utah County					
With Option A Diamond	4.62	4.03	0.06	0.74	9.45
With Option B South SPUI	7.38	2.94	0.16	1.48	11.96

Table 3.14-6: Wetland Impact Summary for Alternative 4 (Acres) - Continued

Section / Option	Wet Meadow	Marsh	Shrub-Scrub	Forested	Total
With Option C North SPUI (Preferred)	5.11	3.68	0.05	0.58	9.42
South Salt Lake County	0.00	0.00	1.03	0.00	1.03
Total (Minimum)	Preferred Alternative				46.95
Total (Maximum)	Alternative 4 with American Fork Option B and Provo/Orem Option B				60.43

Note: Acreages are based on wetland impact table dated April 28, 2008.

A summary of the wetland values for wetlands and other waters of the United States potentially impacted as a result of implementing Alternative 4 is provided in Table 3.14-7. Less than one-half acres of high value wetlands would be impacted by the 43-mile long project under any of the options. The majority of impacts are to lower functioning Category 3 wetlands.

Table 3.14-7: Comparison of Affected Wetland Values by Design Option

Section / Option	Category 1	Category 2	Category 3	Category 4	Total
Section Totals					
South Utah County	0.46	0.47	8.21	0.00	9.14
Central Utah County					
With Option A	0.00	0.00	38.03	0.06	38.09
With Option B	0.00	0.00	38.24	0.06	38.30
With Option C	0.00	0.00	29.97	0.06	30.03
With Option D (Preferred)	0.00	0.00	27.30	0.06	27.36
North Utah County					
With Option A Diamond	0.00	4.69	4.76	0.00	9.45
With Option B South SPUI	0.00	7.81	4.15	0.00	11.96
With Option C North SPUI (Preferred)	0.00	5.49	3.93	0.00	9.42
South Salt Lake County	0.00	0.00	1.03	0.00	1.03
TOTAL PROJECT IMPACTS (range from lowest to highest)	0.46	5.16 to 8.28	33.42 to 45.95	0.06 to 0.13	46.95 to 60.43 acres

3.14.4.6 Indirect Impacts

The project by itself is not expected to cause any more growth than what is already projected by the Governor's Office of Planning and Budget, and that is incorporated in city plans and long range plans. The project may, however, affect the pace of projected growth and influence the nature of development. Many of the indirect impacts that could result from such a transportation project are a combination of social, economic influences that are independent of transportation facilities. Indirect effects are expected to be controlled by local-land-use policy as reflected in general zoning plans.

The Preferred Alternative also requires a small re-alignment of American Fork Main Street. The remainder of the project is along well-developed and long-established corridor, where minimal indirect environmental impacts can be expected.

The permitting requirements associated with Section 404(b)(1) guidelines governing the U.S. Army Corps of Engineers' permit are limited to requiring mitigation for indirect impacts that are specific and predictable in terms of location and degree. More generalized indirect impacts such as those associated with possible future growth in a region do not require mitigation by FHWA or UDOT. In the event that future development results in wetland impacts, the proponent of the development is required to mitigate those impacts.

Potential indirect effects to wetlands that are in close proximity to I-15 are listed below:

- During construction, ground disturbance may create potential for wind-blown dust and for erosion of sediments into wetlands located adjacent to I-15, which could adversely affect wetland hydrology and vegetation.
- Soil disturbance and removal of existing vegetation would potentially increase the potential for the spread of invasive exotic plant species into adjacent wetlands.
- Construction materials, such as fuel, oil, lubricants, and concrete that may be spilled into adjacent wetlands, could have adverse effects on vegetation and aquatic invertebrates.
- The additional impervious surface area created by Alternative 4 will need to be de-iced in the winter and thus would increase the amount of de-icing substances used (salt, sand, other substances). However, runoff from the roadway is being captured and detained in detention basins which will include oil and grease skimmers.

Some of these effects would be short-term, such as construction impacts. Section 3.18.10 of this chapter specifies mitigation measures that would be required during construction to protect wetlands.

Other effects, such as runoff of contaminants, would be ongoing, continual effects. Other impacts, such as barriers to water flow or wildlife movement, are existing effects of the highway, and the new lanes would not be expected to add substantially to these indirect effects.

3.14.5 *Avoidance and Minimization*

The wetlands adjacent to the existing I-15 corridor were identified and mapped and incorporated into the engineering mapping. This enabled development of conceptual engineering that could avoid wetlands and minimize impacts to those that could not be avoided.

Where wetlands could not be avoided and would be impacted by the proposed project, the typical cross-sections described in Chapter 2 were used to reduce the footprint of Alternative 4 and minimize impacts to wetlands. This cross-section incorporates a retaining wall on the edge of shoulder and, where side slopes are needed, a steepening of side slopes from 1:6 to 1:2. This approach resulted in the minimization of impacts to 19 wetlands adjacent to I-15. Without this minimization, over 5 acres of additional wetlands would have been impacted by Alternative 4.

Between the DEIS and FEIS an I-15 mainline alignment shift in the Provo/Orem area reduced wetland impacts for Option D. At American Fork Main Street (Option C) wetland impacts were reduced by an alignment shift of the cross street and the addition of new retaining walls.

3.14.6 Mitigation

Although the Preferred Alternative is the least environmentally damaging, practicable alternative, adverse effects will result (Section 3.14). In addition to limited on-site mitigation, the wetland mitigation plan for this project will include use of a wetland mitigation bank that UDOT is currently developing with the USACE. Plans for the mitigation bank are not yet complete, but some of the known details are listed below:

- A Mitigation Bank Review Team (MBRT) has been formed consisting of members from USACE, EPA, USFWS, FHWA, DWR, and UDOT to oversee the development of a wetland mitigation bank in Utah County. The MBRT supports the wetland mitigation bank as a preferred approach to mitigate unavoidable wetland impacts.
- The bank will be developed to mitigate the various wetland types (wet meadow, marsh, shrub-scrub, and forested wetlands) impacted by the project and mitigate the wetland functions (hydrology, biogeochemistry, and flora and fauna) provided by those wetlands.
- Sites are currently being investigated near Utah Lake for their potential to be successful wetland banks and more details will be disclosed as soon as they are determined by UDOT, FHWA, and the USACE.
- The service area for the bank extends from the Utah/ Salt Lake County line to SR-75 in Springville.

In addition to compensatory mitigation, other protective measures include:

- Where wetlands are present adjacent to the limits of disturbance, UDOT will install protective fencing at the limits of the construction area, outside which all construction activities will be excluded. This will prevent incidental adverse effects on adjacent wetlands.
- In areas with shallow groundwater or areas that frequently carry surface water flows, UDOT will install culverts or other water conveyance structures to maintain existing hydrologic connectivity. This will avoid impacts on wetland hydrology.
- BMPs will be utilized during all phases of construction, including permanent BMPs after construction, including berms, brush barriers, check dams, erosion control blankets, filter strips, sandbag barriers, sediment basins, sheet mulching, silt fences, surface roughening, or diversion channels. These will reduce impacts from sedimentation and erosion.

The contractor will be required to comply with the conditions of the USACE Section 404 permit and UDOT Standard Specification 01574 Environmental Control Supervisor and 01571 Temporary Environmental Controls.

Many of the mitigation measures specified to protect water quality and vegetation during construction will also serve to protect wetlands. In addition, the following wetland protection and impact avoidance measures will be implemented:

- Before construction begins, wetland and riparian areas outside the limits of disturbance will be marked by perimeter environmental fencing to identify the no-work area.
- Free flow of waters into and across wetlands will be maintained by installing culverts at existing grade.
- Embankments, bridges, and culverts will be designed to minimize adverse impacts on wetlands, riparian areas, and drainages.
- When construction activities commence, administrative and environmental controls will be in place to ensure that wetland/riparian areas outside the limits of disturbance are not impacted.
- Erosion control measures will be used to ensure that sediment from construction areas does not reach wetlands, riparian areas, or streams.

- Any changes to the construction plans by either the contractor or UDOT will require review and approval by the appropriate State or Federal agency if there is the potential for impacts on wetlands or waters of the U.S. not previously identified.
- Contract specifications will ensure that all contractors are aware of Section 404 and Stream Alteration Permit conditions and of the various plans and measures developed to control and minimize wetland, riparian, and stream alteration impacts during construction. UDOT will monitor contractor activities to ensure all permit conditions are met.
- Restoration of temporarily disturbed wetlands will include rough grading, if necessary, and re-vegetation to approximate pre-project conditions.

Taking into account these avoidance, minimization, compensation and mitigation measures, the Preferred Alternative will be in compliance with Section 404 of the CWA and Executive Order 11990.

3.15 Wildlife, Threatened and Endangered Species, and Special-Status Plants

This section describes the wildlife resources, threatened and endangered species, and special-status plant species that have the potential to occur in the project and regional study areas. It has been based in part on a Biological Assessment prepared for the FWS. Existing conditions and potential project-related impacts on wildlife and sensitive species, including threatened and endangered species, were analyzed at two geographic levels: the project level (project study area) and the regional level (regional study area). These areas are described below and shown in Figures 3.15-1 and 3.15-2.

The project study area (Figure 3.15-1) is located along the I-15 Corridor from South Payson (Utah County) north to the 12300 South Interchange in Draper (Salt Lake County). The project study area includes the area within 1,320 feet on either side of the existing I-15 Corridor between the interchanges and 2,640 feet on either side of the corridor at or in the vicinity of each existing or proposed interchange. The project study area encompasses approximately 39,139 acres, the total area for which geographic information system (GIS) data were available to identify the various sensitive species habitats.

The study area for the regional-level analysis was defined by a subset of the Jordan River and Utah Lake U.S. Geological Survey (USGS) hydrologic units below 4,700 feet in elevation. This study area boundary includes wetland habitats associated with Utah Lake (Figure 3.15-2) that could potentially be used by migrating birds that also use the project study area.

Threatened and endangered species and special-status species include those recognized under state or federal authority as being of concern with regard to their long-term viability in the region. The regulatory setting and different status classifications of these species are described. Table 3.15-1 lists and describes these species (except migratory species) and identifies the federal and/or state status of each.

3.15.1 *Regulatory Setting*

The following federal and state laws guide regulatory authority over special-status plants and wildlife species that are known to occur or potentially could occur in the project and regional study areas. Special-status species for Utah and Salt Lake counties are shown in Table 3.15-1. A description of these species and their occurrence in the study area is discussed in Section 3.15.2.1.

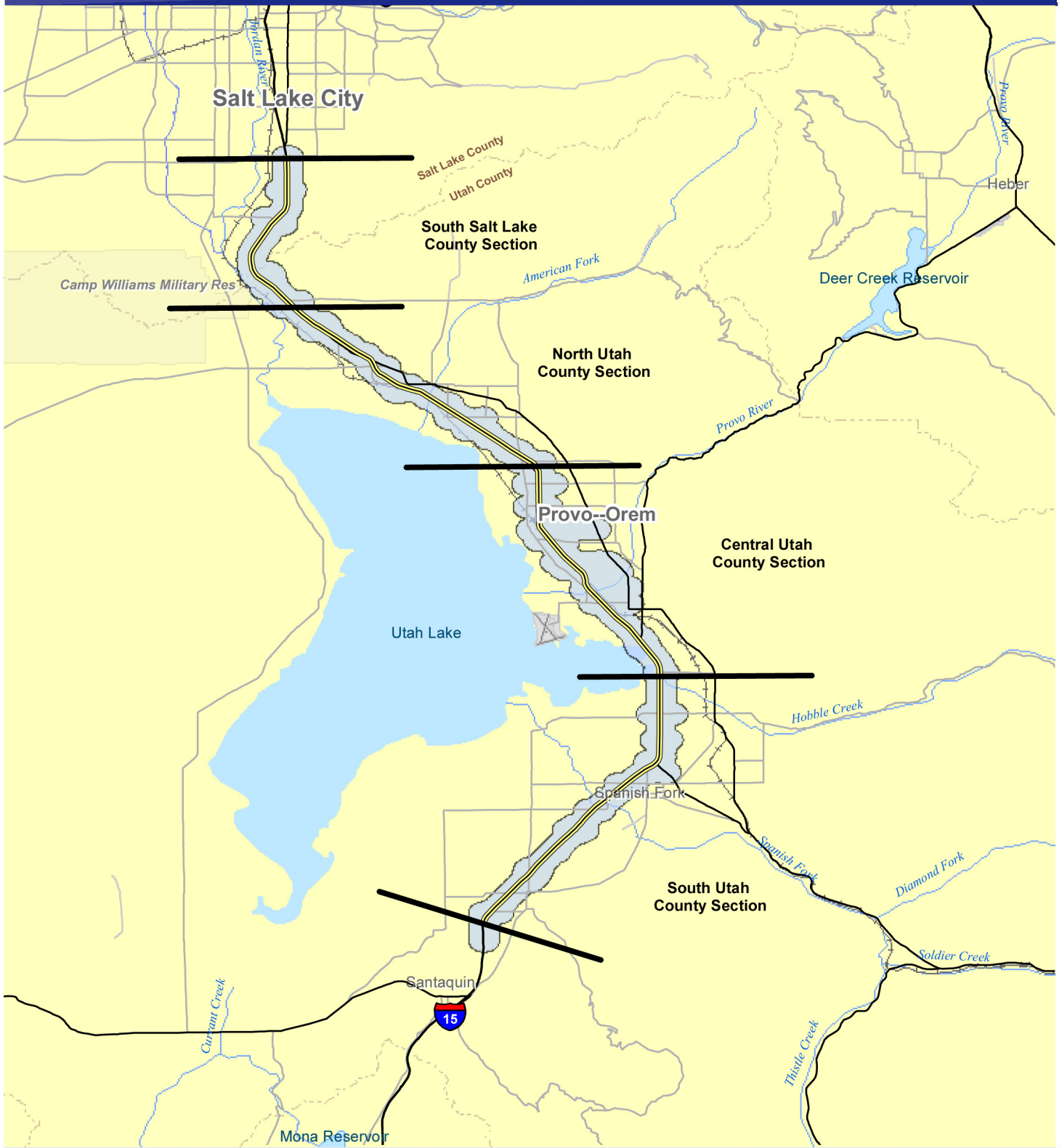


Figure 3.15-1
Wildlife and Special Status Species Project Study Area

LEGEND:

I-15 Corridor Wildlife and Special Status Species Project Study Area



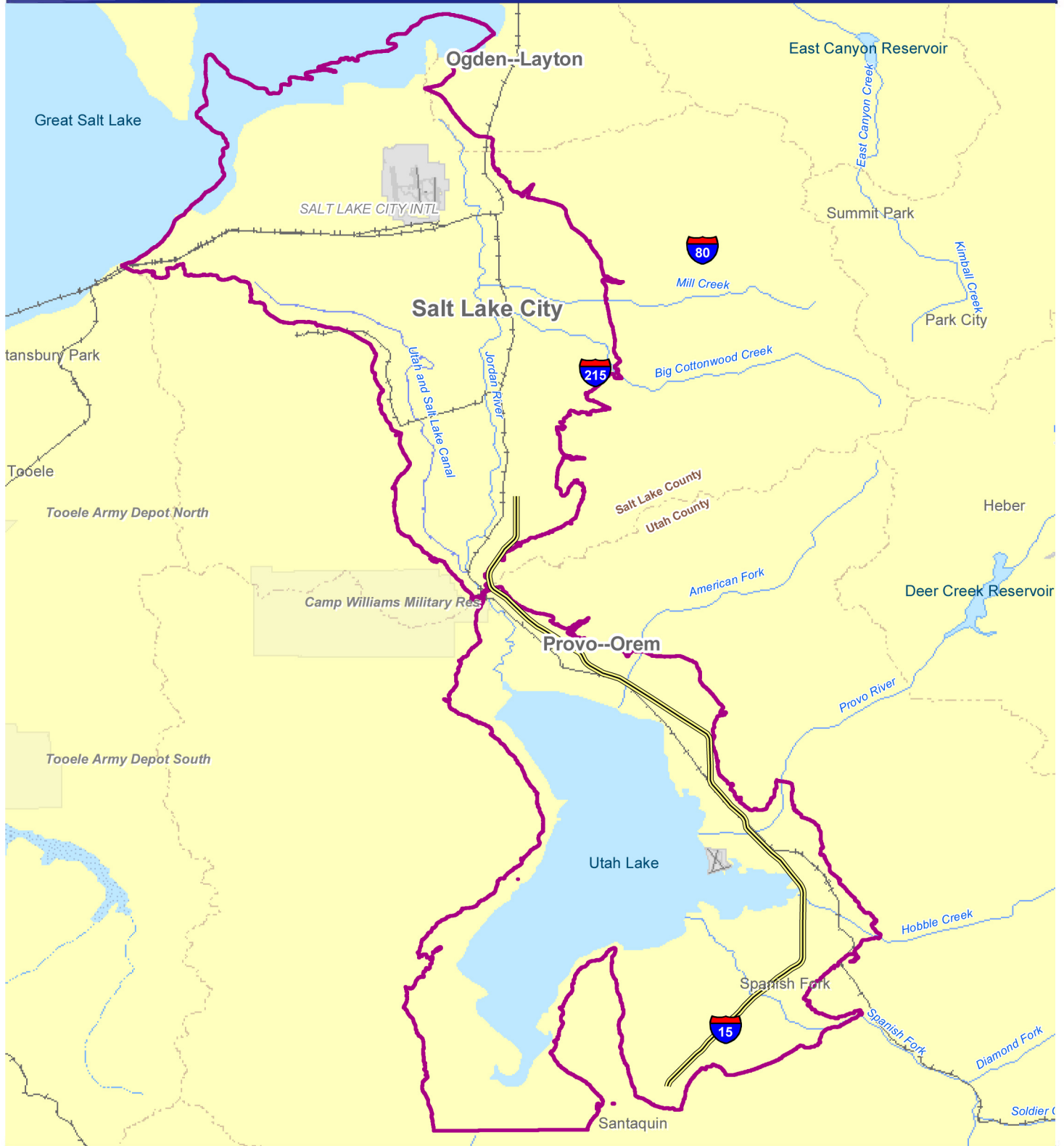


Figure 3.15-2
Wildlife and Special Status Species Regional Study Area

LEGEND:

— I-15 Corridor Regional Study Area

0 2.5 5 10
Miles



Table 3.15-1: Special-Status Species for Utah and Salt Lake Counties

Species Common Name	Species Scientific Name	Federal Status	Utah State Status
Plants			
Ute Ladies'-tresses	<i>Spiranthes diluvialis</i>	Threatened	None
Clay Phacelia	<i>Phacelia argillacea</i>	Endangered	None
Deseret Milkvetch	<i>Astragalus desereticus</i>	Threatened	None
Fish			
June Sucker	<i>Chasmistes liorus</i>	Endangered	Sensitive Species
Leatherside Chub	<i>Gila copei</i>	None	Sensitive Species
Bluehead Sucker	<i>Catostomus discobolus</i>	None	Conservation Agreement Species
Bonneville Cutthroat Trout	<i>Oncorhynchus clarkii</i>	None	Conservation Agreement Species
Birds			
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Delisted*	Sensitive Species
Yellow-billed Cuckoo	<i>Coccyzus americanus occidentalis</i>	Candidate	Sensitive Species
Northern Goshawk	<i>Accipiter gentilis</i>	None	Conservation Agreement Species
Ferruginous Hawk	<i>Buteo regalis</i>	None	Sensitive Species
Long-billed Curlew	<i>Numenius americanus</i>	None	Sensitive Species
Lewis' Woodpecker	<i>Melanerpes lewis</i>	None	Sensitive Species
American White Pelican	<i>Pelecanus erythrorhynchos</i>	None	Sensitive Species
Burrowing Owl	<i>Athene cunicularia</i>	None	Sensitive Species
Short-eared Owl	<i>Asio flammeus</i>	None	Sensitive Species
Bobolink	<i>Dolichonyx oryzivorus</i>	None	Sensitive Species
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	None	Sensitive Species
Black Swift	<i>Cypseloides niger</i>	None	Species of Concern
Greater Sage Grouse	<i>Centrocercus urophasianus</i>	None	Species of Concern
Amphibians			
Columbia Spotted Frog	<i>Rana luteiventris</i>	None	Conservation Agreement Species
Western (Boreal) Toad	<i>Bufo boreas</i>	None	Sensitive Species

Table 3.15-1: Special-Status Species for Utah and Salt Lake Counties – continued

Species Common Name	Species Scientific Name	Federal Status	Utah State Status
Mammals			
Fringed Myotis	<i>Myotis thysanodes</i>	None	Sensitive Species
Spotted Bat	<i>Euderma maculatum</i>	None	Sensitive Species
Townsend's Big-Eared Bat	<i>Corynorhinus townsendii</i>	None	Sensitive Species
Kit Fox	<i>Vulpes macrotis</i>	None	Sensitive Species
Brown (Grizzly) Bear	<i>Ursus arctos</i>	Threatened (Extirpated)	None
Canada Lynx	<i>Lynx canadensis</i>	Threatened	Sensitive Species
Mollusks			
California Floater	<i>Anodonta Californiensis</i>	None	Species of Concern
Desert Valvata	<i>Valvata utahensis</i>	Endangered (Extirpated)	None
Eureka Mountain Snail	<i>Oreohelix eurekaensis</i>	None	Species of Concern

Note:

The special-status species that occur or could occur in project and regional study areas are discussed further in Section 3.15.2.1. The State Wildlife Species of Concern list by county is located at the following URL:
<http://dwrccdc.nr.utah.gov/ucdc/default.asp>.

- * The U.S. Fish and Wildlife Service (USFWS) published the removal of the Bald Eagle from the list of threatened and endangered species on July 9, 2007, in the Federal Register (72 FR 37346). USFWS will monitor the Bald Eagle population status for a minimum of 5 years after delisting, as required by the Endangered Species Act. The Bald Eagle will continue to be protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Sources: Utah Division of Wildlife Resources 2007a, 2007b.

3.15.1.1 Federal

Endangered Species Act (16 United States Code [USC] 1531 et seq.)

Under Section 7 of the federal Endangered Species Act (ESA), federal agencies are required to ensure that their actions do not jeopardize the continued existence of species listed as endangered or threatened, or result in destruction or adverse modification of designated critical habitats used by those species. An endangered species is a species that is in danger of extinction throughout all or a significant part of its range. Threatened species are likely to become endangered in the foreseeable future throughout all or a significant part of their range. Candidate species are plants and animals for which sufficient information exists on their biological vulnerability and threats to support a proposal to list them as endangered or threatened under the ESA, but for which development of a listing regulation is precluded by other higher-priority listing activities. State and federal agencies typically carry out conservation actions for candidate species to prevent further decline and possibly eliminate the need for future listing.

Section 9 of the ESA makes it unlawful for a person to take a listed species, where *take* is defined as “[to] harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct” (16 USC

1532). Further, the term *harass* is defined as an intentional or negligent act that creates the likelihood of injuring wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns such as breeding, feeding, or sheltering (50 Code of Federal Regulations [CFR] 17.3). *Harm* is an act that either kills or injures a listed species. Such an act may include habitat modification or degradation that actually kills or injures a listed species by significantly impairing essential behavior patterns such as breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 217.12). Habitat degradation can cause take through either harm or harass pathways. Acceptable levels of incidental take may be allowed under the authorities of Sections 4(d), 7(b), and 10(a) of the ESA. USFWS is one of the federal agencies that administers the ESA and has primary responsibility for terrestrial and freshwater species.

As shown in Table 3.15-1, one endangered species (June Sucker), one threatened species (Ute ladies'-tresses), one candidate species (Yellow-billed Cuckoo), and one recently delisted species (Bald Eagle) occur or may occur in the project study area. USFWS published the removal of the Bald Eagle from the list of threatened and endangered species on July 9, 2007, in the Federal Register (72 FR 37346). USFWS will monitor the Bald Eagle population status for a minimum of 5 years after delisting, as required by the Endangered Species Act. The Bald Eagle will continue to be protected under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA). A biological assessment (BA) has been prepared pursuant to ESA Section 7 to evaluate the potential impacts of Alternative 4 on the June Sucker.

Migratory Bird Treaty Act (16 USC 703–711)

The federal MBTA prohibits the take of any migratory bird or any part, nest, or egg of any such bird, where *take* is defined as an attempt to “pursue, hunt, shoot, capture, collect, or kill.” This act applies to all persons and organizations in the United States, including federal and state agencies. The MBTA is administered by USFWS, with regulation of listed migratory birds delegated to the agency staff handling Section 7 of the ESA, and regulation of unlisted migratory birds delegated to the USFWS Migratory Bird Division.

Bald and Golden Eagle Protection Act (16 USC 668-668d)

The federal BGEPA provides for the protection of the Bald Eagle and the Golden Eagle by prohibiting, except under certain specified conditions, the take, possession, and commerce of such birds, alive or dead, including any part, nest, or egg. The term “take” is defined as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb.” The BGEPA is administered by the U.S. Department of the Interior.

Fish and Wildlife Conservation Act (16 USC 2901–2911)

The Fish and Wildlife Conservation Act, as amended, mandates that USFWS identify migratory and nonmigratory birds of the United States and its territories that, without additional conservation actions, are likely to become candidates for listing under the ESA. These species include ESA candidate, proposed endangered or threatened, and recently delisted species (U.S. Fish and Wildlife Service 2002).

3.15.1.2 State of Utah

State of Utah conservation agreement species (CASs) and wildlife species of concern (WSCs) included on the Utah sensitive species list for Utah and Salt Lake counties are shown in Table 3.15-1 and discussed in Section 3.15.1.2. No plants identified on the Utah sensitive species list occur in the project study area.

Conservation Agreement Species

Conservation agreements are formal agreements between USFWS and one or more parties to address the conservation needs of species that are candidates or proposed for listing as endangered or threatened, or species likely to become candidates, before they become listed. The participants voluntarily commit to implementing specific actions that will remove or reduce the threats to these species, thereby contributing to stabilizing or restoring the species so that listing is no longer necessary. Conservation agreements may include plants and animals that have